

Claims:

1. Apparatus for processing image data comprising processing means, input means and display means, wherein said image data is defined by a plurality of data processing nodes arranged in a hierarchical structure and said processing means is configured to perform the steps of:

generating a first image frame comprising a plurality of components by means of processing said plurality of data processing nodes;

outputting said first image frame to said display means;

receiving, via said input means, first user input data indicating one of said plurality of components;

selecting a first data processing node considered to be appropriate to said indicated component;

generating a second image frame comprising said plurality of components and further comprising tools relevant to said first data processing node; and

outputting said second image frame to said display means.

2. Apparatus according to claim 1, wherein said first data processing node is in a sub-structure of said hierarchical structure that defines said component.

3. Apparatus according to claim 2, wherein said sub-structure is a layer, wherein a layer is defined as a connected collection of nodes having at the top a node that has the same parent node as at least one other node.

4. Apparatus according to claim 3, wherein said processing means selects said first data processing node by performing the following steps:

5 identifying one of the plurality of data processing nodes that defines said component;

defining a plurality of layers within said hierarchical structure by identifying nodes with a plurality of children nodes;

10 identifying the layer that includes said identified data processing node; and

selecting the top node of said identified layer.

5. Apparatus according to claim 3, wherein said processing means selects said first data processing node by performing the following steps:

15 identifying one of the plurality of data processing nodes that defines said component;

defining a plurality of layers within said hierarchical structure by identifying nodes with a plurality of children nodes;

20 identifying the layer that includes said identified data processing node; and

selecting a bottom node of said identified layer.

6. Apparatus according to claim 3, wherein said processing means selects said first data processing node by performing the following steps:

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identifying one of the plurality of data processing nodes that defines said component;

selecting the closest node above said identified node that has the same parent node as at least one other node.

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7. Apparatus according to claim 1, wherein in response to first further user input data said processing means performs the following steps:

selecting a portion of said hierarchical structure that is considered appropriate to said selected component and contains said first data processing node;

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generating third image data comprising a depiction of said portion; and

outputting said third image data to said display means.

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8. Apparatus according to claim 7, wherein said third image data further includes a display of parameters relating to said first data processing node.

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9. Apparatus according to claim 7, wherein said portion of said hierarchical structure is a layer, wherein a layer is defined as a connected collection of nodes having at the top a node that has the same parent node as at least one other node.

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10. Apparatus according to claim 1, wherein in response to second further user input data indicating navigation through said hierarchical structure said processing means performs the following steps:

selecting a second data processing node;
generating a fourth image frame comprising said plurality of
components and tools relevant to said second data processing node; and
outputting said fourth image frame to said display means.

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11. Apparatus according to claim 10, wherein said second data processing node is connected in said hierarchical structure to said first data processing node if said further user input data indicates vertical navigation.

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12. Apparatus according to claim 10, wherein said second data processing node has the same parent node as said first data processing node if said further user input data indicates horizontal navigation.

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13. Apparatus according to claim 10, wherein said second data processing node is of a comparable data type to said first data processing node but defines a different one of said plurality of components from said indicated component if said further user input data indicates horizontal navigation.

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14. A method of processing image data, wherein:
an image frame comprising a plurality of components is generated
by processing a plurality of data processing nodes arranged in a
hierarchical structure;
said image frame is displayed to a user;
said user manually selects one of said plurality of components for
adjusting;

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a first data processing node considered to be appropriate to said component is selected; and

editing tools relevant to said first data processing node are displayed to said user.

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15. A method according to claim **14**, wherein said first data processing node is in a sub-structure of said hierarchical structure that defines said component.

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16. A method according to claim **15**, wherein said sub-structure is a layer, wherein a layer is defined as a connected collection of nodes having at the top a node that has the same parent node as at least one other node.

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17. A method according to claim **16**, wherein said step of selecting said first data processing node comprises the following steps of:

identifying one of the plurality of data processing nodes that defines said component;

defining a plurality of layers within said hierarchical structure by

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identifying nodes with a plurality of children nodes;

identifying the layer that includes said identified data processing node; and

selecting the top node of said identified layer.

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18. A method according to claim **16**, wherein said step of selecting said first data processing node comprises the following steps:

identifying one of the plurality of data processing nodes that defines said component;

defining a plurality of layers within said hierarchical structure by identifying nodes with a plurality of children nodes;

5 identifying the layer that includes said identified data processing node; and

selecting a bottom node of said identified layer.

10 **19.** A method according to claim **14**, wherein said step of selecting said first data processing node comprises the following steps:

identifying one of the plurality of data processing nodes that defines said component;

selecting the closest node above said identified node that has the same parent node as at least one other node.

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20. A method according to claim **14**, wherein in response to further manual input a portion of said hierarchical structure that is considered appropriate to said selected component and contains said first data processing node is displayed to said user.

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21. A method according to claim **20**, wherein a display of parameters relating to said first data processing node is additionally displayed to said user.

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22. A method according to claim **20**, wherein said portion of said hierarchical structure is a layer, wherein a layer is defined as a connected

collection of nodes having at the top a node that has the same parent node as at least one other node.

23. A method according to claim **14**, wherein

5 said user manually selects a direction for navigation through said hierarchical structure;

 a second data processing node is selected in response to said direction; and

10 editing tools relevant to said first data processing node are displayed to said user.

24. A method according to claim **23**, wherein if said direction for navigation is vertical then said second data processing node is connected in said hierarchical structure to said first data processing node.

15 **25.** Apparatus according to claim **23**, wherein if said direction for navigation is horizontal then second data processing node is of a comparable data type to said first data processing node but defines a different one of said plurality of components from said indicated component.

20 **26.** A method according to claim **23**, wherein if said direction for navigation is horizontal then said second data processing node has the same parent node as said first data processing node.

25 **27.** In a computer system having a graphical user interface including a display and a user interface selection device, a method of

processing image data, wherein

an image frame comprising a plurality of components is generated by processing a plurality of data processing nodes arranged in a hierarchical structure;

5 said image frame is displayed to a user by means of said display;

 said system responds to manual operation of said user interface selection device when said user manually selects one of said plurality of components for adjusting;

 said system identifies a first data processing node considered to be
10 appropriate to the component that has been selected; and

 said system updates said graphical user interface to present editing tools relevant to said first data processing node.

28. A method according to claim 27, wherein said step of
15 selecting said first data processing node comprises the steps of

 identifying one of the plurality of data processing nodes that define said component;

 defining a plurality of layers within said hierarchical structure by identifying nodes with a plurality of subordinate nodes;

20 identifying the layer that includes said identified data processing node; and

 selecting the top node of said identified layer.

29. A method according to claim 27, wherein said user manually
25 selects a direction for navigation through said hierarchical structure using said user interface selection device;

a second data processing node is selected in response to said direction; and

editing tools relevant to said first data processing nodes are displayed to said user via said graphical user interface.

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30. A method according to claim **29**, wherein movement of said interface selection device in a first direction results in the second data processing node being connected in said hierarchical structure to said first processing node, and movement in an alternative direction results in said second data processing node being selected that is of a comparable data type to said first data processing node but defines a different one of said plurality of components.

31. A computer-readable medium having computer-readable instructions executable by a computer such that, when executing said instructions, a computer will perform the steps of:

generating an image frame comprising a plurality of components by processing a plurality of data processing nodes arranged in a hierarchical structure;

displaying said image frame to a user;

responding to a user's manual selection of one of said plurality of components for adjustment;

identifying a first data processing node considered to be appropriate to said component that has been selected; and

presenting editing tools relevant to said first data processing node to said user.

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32. A computer-readable medium having computer-readable instructions according to claim **31**, such that when executing said instructions a computer will also perform the steps of:

5 identifying one of the plurality of data processing nodes that define said component;

 defining a plurality of layers within said hierarchical structure by identifying nodes with a plurality of subordinate nodes;

 identifying a layer that includes said identified data processing node;

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 selecting the top node of said identified layer.